

I CLAIM:

1. A multi-stage tube forging method for
disproportionally enlarging an end section of an
aluminum alloy tube of a bicycle frame part, comprising
5 the steps of:

(a) drawing the aluminum alloy tube to form a
thin section and a thick end section extending from
the thin section, wherein the thin section has a wall
thickness thinner than that of the thick end section;
10 (b) radially and proportionally enlarging the
cross-section of the thick end section of the aluminum
alloy tube by forging the aluminum alloy tube in a
first die using a first mandrel in such a manner that
the wall thickness of the thick end section after being
15 enlarged is substantially the same as that of the thin
section; and

(c) disproportionally varying the cross-section
of the thick end section of the aluminum alloy tube
by forging the aluminum alloy tube obtained in step
20 (b) in a second die using a second mandrel.

2. The multi-stage tube forging method of
Claim 1, wherein the perimeter of an end edge of the
thick end section of the aluminum alloy tube obtained
after step (c) is substantially equal to that of the
25 end edge of the thick end section of the aluminum alloy
tube obtained after step (b) and before step (c).

3. The multi-stage tube forging method of

Claim 1, wherein the aluminum alloy tube is cleaned and subsequently immersed in a lubricant medium before the drawing operation.

4. The multi-stage tube forging method of
5 Claim 1, wherein the aluminum alloy tube is partially annealed prior to the drawing operation.

5. The multi-stage tube forging method of
Claim 4, wherein the partial annealing operation is conducted at a temperature ranging from 350°C to 380
10 °C for 2 to 3 hours.

6. The multi-stage tube forging method of
Claim 1, wherein the aluminum alloy tube is completely annealed prior to the enlarging operation of step (b).

7. The multi-stage tube forging method of
15 Claim 6, wherein the complete annealing operation is conducted at a temperature ranging from 400°C to 420 °C for 2 to 3 hours.